Series 44 Field Service Checklist

SYMPTOM	POSSIBLE CAUSE	FIELD TEST	REMEDY
A. No Gas Flow.	1. Valve improperly installed.	1. Arrow on side of valve should point in direction of gas flow.	1. Install properly.
B. Continuous Low Fire. (Electronics O.K.)	2. Open circuit in modulator coil. 3. Plunger missing, jammed or improperly installed. 4. Ruptured main or balancing diaphragm.	2. Remove wires connected to amplifier terminals 6 & 7 and measure resistance. MR212 (60-80 ohms), M611 (45-55 ohms). 3. Inspect - plunger should be installed (as in figures on page 3) and operate freely in solenoid sleeve. 4. Disassemble valve for inspection of internal parts.	2. If proper resistance values are not observed, replace modulator head or repair wiring. 3. Clean or replace plunger if necessary and install (as in figures on page 3). 4. Replace diaphragm if ruptured.
C. Continuous Low Fire. (Electronics Problem)	5. No voltage to the amplifier. 6. Short in modulator coil circuit. 7. Short in TS144 circuit. 8. Faulty amplifier.	5. Check for 24V AC at amplifier terminals 8 & 9. 6. Measure resistance per item 2. 7. Remove wires connected to amplifier terminals 1, 2, & 3. Measure resistance across wires 1 & 3, then 2 & 3. Meter should read greater than 2500 ohms. 8. Follow procedures outlined in "PRELIMINARY CIRCUIT ANALYSIS" (Sections I & II).	5. Provide 24V AC to amplifier. Refer to item 24. 6. If proper resistance values are not observed, replace modulator head or repair wiring. 7. If readings are incorrect, replace the TS144 or repair wiring. 8. If power source and modulator coil check out (items 5 & 6) but proper modulating voltages cannot be obtained, then amplifier may be assumed at fault. Install replacement amplifier.
D. Incorrect Low Fire.	9. Incorrect by-pass metering valve adjustment. 10. Excessive negative burner pressure.	9. See Valve Adjustments - Page 6. 10. Close main gas supply and measure manifold pressure with blower operating. Should be less than 1.5" w.c. negative pressure.	9. Adjust to proper low fire. 10. If greater than 1.5" negative pressure, check equipment for clogged filters and other inlet air restrictions. For other solutions, consult Maxitrol.
E. Continuous Minimum Discharge Air Temperature.	11. Faulty amplifier 12. Short in T244 or TS244/TD244 circuit. 13. Incorrect space temperature calibration.	11. Follow procedures outlined in "PRELIMINARY CIRCUIT ANALYSIS" (Sections I & II). 12. Remove wires connected to amplifier terminals 4 & 5. Set T244 or TD244 to maximum setting. Measure resistance across wires. Meter should read 6000 ohms ± 1000 (T244). If TS244/TD244 are used, meter should read 4500 ohms ± 1000 (TS244) and 2100 ohms ± 150 (TD244). 13. Follow procedures outlined in "PRELIMINARY CIRCUIT ANALYSIS" (Section IV).	11. If amplifier is proven at fault, install replacement amplifier. 12. If reading is incorrect, replace the T244, TS244/TD244 or repair wiring. 13. If proper action is obtained, first check item 12. Recalibrate if necessary - Pg. 8
F. Incorrect Max. or Min. Discharge Air Temperature.	14. Improper TS144 location. 15. Incorrect discharge air temperature calibrations.	14. Compare sensed temperature reading at TS144 with average discharge air temperature. 15. Follow procedures outlined in "PRELIMINARY CIRCUIT ANALYSIS" (Section IV).	14. Move TS144 to location where average temperature can be sensed. 15. If proper temperatures are not observed, refer to Discharge Air Temperature calibration procedures - Page 8.
G. Continuous High Fire. (Electronics O.K.)	16. Foreign material holding valve open. 17. Plunger jammed.	16. Remove bottom plate and inspect valve and seat. 17. Inspect - plunger should be smooth and clean and operate freely in solenoid sleeve.	16. Clean, replace valve and/or seat if necessary. 17. Clean, or if necessary, replace plunger.
H. Continuous High Fire. (Electronics Problem)	18. Open circuit in TS144.	18. Measure resistance per item 7.	18. If readings are incorrect, replace the TS144 or repair wiring.
I. Incorrect High Fire.	19. Inlet pressure too low. 20. Incorrect outlet pressure adjustment.	19. Read inlet pressure at valve, using a manometer with heater operating at full fire. Pressure should be at least equal to the sum of: outlet pressure setting and pressure drop of the valve (See Maxitrol Capacity Chart Bulletin) plus 1.0" w.c. 20. Read outlet pressure using manometer and compare with recommendation of equipment manufacturer.	19. Increase inlet pressure if possible or change to larger valve. Consult Maxitrol about possiblity of using special spring to reduce pressure drop on selected installations. 20. See Valve Adjustments - Page 6.
J. Continuous Maximum Discharge Air Temperature.	21. Faulty amplifier. 22. Open circuit in T244 or TS244/TD244. 23. Incorrect space temperature calibration.	21. Follow procedures outlined in "PRELIMINARY CIRCUIT ANALYSIS" (Sections I & II). 22. Measure resistance per item 12. 23. Follow procedures outlined in "PRELIMINARY CIRCUIT ANALYSIS" (Section IV).	21. If amplifier is proven at fault, install replacement amplifier. 22. If reading is incorrect, replace the T244, TS244/TD244 or repair wiring. 23. If proper action is obtained, first check item 22. Recalibrate if necessary - Page 8.
K. Burned out Transformer. No Voltage to Amplifier.	24. Short in modulator coil circuit.	24. Measure resistance per item 2.	24. If proper resistances are not observed, replace modulator head or repair wiring.
L. Incorrect Space Temperature.	25. Incorrect maximum discharge air temperature setting (A1044). 26. Incorrect minimum discharge air temperature setting (A1044). 27. Insufficient burner capacity. 28. Incorrect space temperature calibration.	25. Check to see if heater is delivering air at maximum discharge air setting. 26. Check to see if heater is delivering air at minimum discharge air setting. 27. Check to see if heater is operating at high fire. 28. Place thermometer next to T244 or TS244. Compare space temperature reading with T244 or TD244 dial setting.	25. If desired temperature is not reached, increase maximum discharge air temperature setting. 26. If desired space temperature is not reached, decrease minimum discharge air temperature setting. 27. If desired space temperature is not reached with heater at high fire, it may be undersized. Consult equipment manufacturer. 28. If temperature reading is incorrect, check items 25, 26 & 27, then recalibrate if necessary.

**** Control circuits external to the Series 44 can cause burner malfunction. Always check manual valve to be certain gas is on, and check limit controls for normal operation.***